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IN THE CLAIMS:

Please add new claims 40-49 and cancel claims 18-21 and 33-39 without prejudice to revival for subsequent prosecution. Please amend claims 1, 5-8, 11, 12,15, 22, and 27-30 and substitute the following amended, clean version of all pending claims as follows. A marked up copy of the amendments to the claims is attached as Appendix A.

C1 ~~1~~ 1. (amended) A recombinant immunoconjugate, comprising a therapeutic agent or a detectable label covalently linked to a recombinant antibody that binds an extracellular epitope of CD22 (an "anti-CD22 antibody") having a V_H with a cysteine at amino acid position 44 and a V_L with a cysteine at amino acid position 100.

2. (as filed) The recombinant immunoconjugate of claim 1, wherein said therapeutic agent is a toxin.

3. (as filed) The recombinant immunoconjugate of claim 2, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

4. (as filed) The recombinant immunoconjugate of claim 3, wherein said cytotoxic fragment is PE38.

Sub 23 ~~5~~ 5. (amended) The recombinant immunoconjugate of claim 1, wherein said anti-CD22 antibody is a binding fragment that binds a same epitope as an RFB4 disulfide-stabilized Fv (dsFv) comprising a variable heavy (V_H) chain as set out in SEQ ID NO:2, wherein a Cys residue is substituted for Arg at position 44; and a variable light (V_L) chain as set out in SEQ ID NO:4, wherein a Cys residue is substituted for Gly at position 100.

6. (amended) The recombinant immunoconjugate of claim 1, wherein said antibody comprises a variable heavy (V_H) chain at least 90% identical to that set out in SEQ ID

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NO:2 over a comparison window of 10 amino acids, and a variable light (V_L) chain at least 90% identical to that set out in SEQ ID NO:4 over a comparison window of 10 amino acids; and further, wherein said antibody binds to the same epitope as an RFB4 antibody comprising a V_H chain of SEQ ID NO:2 and a V_L chain of SEQ ID NO:4.

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7. (amended) The recombinant immunoconjugate of claim 3, wherein said variable heavy (V_H) chain is covalently linked to the carboxyl terminus of said toxin.

8. (amended) The recombinant immunoconjugate of claim 6, wherein said V_H chain is covalently linked to said V_L chain through a linker peptide.

9. (as filed) The recombinant immunoconjugate of claim 6, wherein said V_H chain is linked to said V_L chain through a cysteine-cysteine disulfide bond.

10. (as filed) The recombinant immunoconjugate of claim 8, wherein said linker peptide has the sequence of SEQ ID NO:5.

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11. (amended) An expression cassette encoding a recombinant immunoconjugate comprising a sequence encoding for a toxin peptide and an antibody that binds to an extracellular epitope of CD22 (an "anti-CD22" antibody) having a V_H encoding for a cysteine at amino acid position 44 and a V_L encoding for a cysteine at amino acid position 100.

12. (amended) The expression cassette of claim 11, wherein said antibody is a binding fragment that binds to a same epitope as an RFB4 disulfide-stabilized Fv (dsFv) comprising a variable heavy (V_H) chain as set out in SEQ ID NO:2, wherein a Cys residue is substituted for Arg at position 44; and a variable light (V_L) chain as set out in SEQ ID NO:4, wherein a Cys residue is substituted for Gly at position 100.

13. (as filed) The expression cassette of claim 11, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

14. (as filed) The expression cassette of claim 11, wherein said cytotoxic fragment is PE38.

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15. (amended) The expression cassette of claim 11, wherein said antibody comprises a variable heavy (V_H) chain at least 90% identical to that set out in SEQ ID NO:2 over a comparison window of 10 amino acids, and a variable light (V_L) chain at least 90% identical to that set out in SEQ ID NO:4 over a comparison window of 10 amino acids; and further, wherein said antibody binds to the same epitope as an RFB4 dsFv as set out in claim 12.

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16. (as filed) The expression cassette of claim 15, further comprising a sequence encoding for a linker peptide having the sequence of SEQ ID NO:5.

17. (as filed) A host cell comprising an expression cassette of claim 11.

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22. (amended) A method for inhibiting the growth of a malignant B-cell that expresses a CD22 molecule on the surface of the cell, said method comprising:
contacting said malignant B-cell with an effective amount of a recombinant immunoconjugate of claim 1, thereby inhibiting the growth of the malignant B-cell.

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23. (as filed) The method of claim 22, wherein said toxin is a *Pseudomonas* exotoxin (PE) or a cytotoxic fragment thereof.

24. (as filed) The method of claim 22, wherein said malignant B-cell is contacted *in vivo*.

25. (as filed) The method of claim 22, wherein said malignant B-cell is selected from the group consisting of: a rodent B-cell, a canine B-cell, and a primate B-cell.

26. (as filed) The method of claim 23, wherein said cytotoxic fragment is a PE38 fragment.

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27. (amended) The method of claim 22, wherein said immunoconjugate comprises an antibody binding fragment that binds to a same epitope as an RFB4 disulfide-stabilized Fv (dsFv) comprising a variable heavy (V_H) chain as set out in SEQ ID NO:2, wherein a Cys residue is substituted for Arg at position 44; and a variable light (V_L) chain as set out in SEQ ID NO:4, wherein a Cys residue is substituted for Gly at position 100.

cb 28. (amended) The method of claim 22, wherein said immunoconjugate comprises an antibody comprising a variable heavy (V_H) chain at least 90% identical to that set out in SEQ ID NO:2 over a comparison window of 10 amino acids, and a variable light (V_L) chain at least 90% identical to that set out in SEQ ID NO:4 over a comparison window of 10 amino acids; and further, wherein said antibody binds to the same epitope as an RFB4 antibody comprising a V_H chain of SEQ ID NO:2 and a V_L chain of SEQ ID NO:4.

29. (amended) The method of claim 23, wherein a variable heavy chain is covalently linked at the carboxyl terminus of said toxin.

30. (amended) The method of claim 29, wherein said V_H chain is covalently linked to said V_L chain through a linker peptide.

31. (as filed) The method of claim 29, wherein said V_H chain is linked to said V_L chain through a cysteine-cysteine disulfide bond.

32. (as filed) The method of claim 31, wherein said linker peptide has the sequence of SEQ ID NO:5.

40. (new) An isolated nucleic acid encoding a V_H chain comprising an amino acid sequence as set out in SEQ ID NO:2.

41. (new) An isolated nucleic acid encoding a V_L chain comprising an amino acid sequence as set out in SEQ ID NO:4.

c7 42. (new) An isolated nucleic acid encoding a V_H chain comprising a conservatively modified variant of an amino acid sequence set forth in SEQ ID NO:2.

43. (new) An isolated nucleic acid encoding a V_L chain comprising a conservatively modified variant of an amino acid sequence set forth in SEQ ID NO:4.

44. (new) An antibody that binds to an extracellular epitope of CD22 (an "anti-CD22 antibody") comprising a variable heavy (V_H) chain that is a conservatively modified variant of SEQ ID NO:2 and a variable light (V_L) chain that is a conservatively modified variant of SEQ ID